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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,012	02/07/2001	Mark Flanagan	01 P 7457 US	5615

7590

07/13/2004

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EXAMINER

MOORE, IAN N

ART UNIT

PAPER NUMBER

2661

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/779,012

Applicant(s)

FLANAGAN ET AL.

Examiner

Ian N Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 18-22 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, **the second processor (in claims 1 and 9) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.**

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Quality of Service Monitor over Voice-over-Internet-Protocol Calls.**

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7,8,15,16 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - **Claim 7** recites the limitation, "...the collected packet loss datum..." in line 1. There is insufficient antecedent basis for this limitation in the claim. It is also unclear what is the difference between the collection data on packet loss and the collected packet loss datum. Particularly, it is unclear what is the meaning of "datum" since the specification neither discloses such meaning nor description.
 - **Claims 8, 15, 16, and 17** are also rejected for the same reason as stated above in claim 7.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3,9-11,18,19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung'957 in view of Qureshi (U.S. 6.747.953).

Regarding Claims 1,2,9 and 10, Cheung'957 discloses an apparatus (see **FIG. 2, VoIP System**; see col. 5, lines 25-26), for blocking the routing of voice calls over an Internet protocol (IP) network (see **FIG. 2, IP network 140**) when a packet loss measure rises above a threshold, said apparatus comprising:

a terminal (see **FIG. 2, Telephony Station 111**) configured to transmit voice calls (see col. 5, lines 30-35; note that the telephony station includes a conventional telephone, a personal computer system, a wireless telephone station and etc.), said terminal being connected to the IP network (see **FIG. 2, Telephony Station 111 is connected to IP network 23 via PBX 110 and Administration Control Gateway 100**; see col. 5, lines 24-38);

a first processor (see **FIG. 3, a combined system of processor 250, call quality requirements data structure 220 and IP network performance characteristics data structure 230 which performs a specific collecting/storing function**) for collecting data on packet quality (see col. 4, lines 20-29; call quality requirement is the packet quality/loss) for each of a plurality of time intervals in a current connection path over the IP network (see

col. 6, lines 46 to col. 7, lines 35; see col. 9, lines 36-42; note that the combined system collects/stores the current and/or projected pack loss quality requirement parameter/data over the specific time period/interval (i.e. the packet loss rate or error rate must be determined and measured for each of a plurality of time interval/period since rate is calculated over the time) in a current connection path/route (i.e. storing/collection is performed for each current quality data, thus it is clear that it is collecting/storing for current path/route) over the IP network);

a second processor (see FIG. 3, a combined system of processor 250 and dynamic Call admission instructions 240 which performs a specific determining/evaluation function) for evaluating the packet quality data according to a predetermined algorithm (see FIG. 5, algorithm that performs the methods/steps of determining/evaluating the quality requirements (i.e. packet loss); see col. 7, lines 36 to col. 8, lines 25), wherein if the results of said evaluation fail to meet a predetermined criterion (see FIG. 5, Steps 560 and 570; when the output of steps 560 and 570 does not meet the threshold criteria), the calls over the IP network path are blocked (see FIG. 5, step 575, the current call and next/future calls through IP packet switch network is stopped/blocked by re-directing/sending through circuit switch network, as long as call quality requirement does not the threshold criteria); see col. 8, lines 47 to col. 9, lines 11, 34-50;

wherein the functions of the first and second processors are performed by a single processor (see FIG. 3, Processor 250; note that the each function/processing (i.e. first and second processors, or processing systems) is performed a single processor 250; see col. 6, lines 24-28).

Cheung'957 does not explicitly disclose the packet loss and future calls.

However, the above-mentioned claimed limitations are taught by Qureshi'953. In particular, Qureshi'953 teaches collecting data on packet loss for each of a plurality of time interval in a current connection path (see col. 15, lines 38-50, 60-67 to col. 16, lines 20, 29-42; see FIG. 7A, step 700; see col. 18, lines 28-36; note that the system collects/measures data for the packet loss for each of a time interval in the active/current call),

evaluating the packet loss data according to a predetermined algorithm (see FIG. 7B, step 725; see col. 18, lines 65 to col. 19, lines 5; note that the packet loss data is determined/evaluated according to the method/algorithm in FIG. 7),

wherein if the results of said evaluation fail to meet a predetermined criterion (see FIG. 7B, Step 725, determining if the average packet loss A_{LC} is no longer less than the packet loss threshold criterion (L_t); see col. 19, lines 1-5),

future calls are blocked (see FIG. 7B, Step 729, Reject New Calls; see col. 19, lines 5-10; note that upon determination, future/new calls are blocked/rejected).

In view of this, having the system of Cheung'957 and then given the teaching of Qureshi'953, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Cheung'957, for the purpose of providing algorithm which utilizes past interval/interaction and current interval/iteration when computing the result, as taught by Qureshi'953, since Qureshi'953 states the advantages/benefits at col. 2, lines 54 to col. 3, lines 12 that it would provide a mechanism for determining the congestion and level of call blocking needed to provide a predetermined quality of service for calls. The motivation being that by taking the corrective action of

blocking the new/future calls according to the packet loss data, it can reduce or eliminate data loss.

Regarding Claims 3 and 11, Cheung'957 discloses wherein the calls over the IP network path are blocked for a prespecified duration (see col. 9, lines 6-11, 35-44, 55-57; note that call quality requirements are measured/collected and updated periodically to ascertain the quality requirements. Thus, the calls are redirected through the circuit switch network for a predetermined duration, which is the duration that the quality requirement does not meet/satisfy the threshold).

Qureshi'953 also discloses wherein the calls are blocked for a prespecified duration (see col. 19, lines 1-30; note that the calls are rejected/blocked for the predefined/pre-set duration of the packet loss exceeding the threshold set by the system administrator. Thus, it is clear that the calls are blocked for a predefined duration/period.)

In view of this, having the system of Cheung'957 and then given the teaching of Qureshi'953, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Cheung'957, for the same purpose and motivation as described above in claim 1 and 9.

Regarding Claim 18, Cheung'957 discloses wherein data on packet loss are collected simultaneously on multiple connections over the IP network (see col. 6, lines 4-11, 52 to col. 7, lines 10, see col. 9, lines 38-42; note that the call quality requirements (i.e. packet loss) are monitored and stored/collected concurrently/simultaneously for each

connection/call since more than one call/connection is being processed by the admission control gateway. It is also clear that Admission Control Gateway handles and process multiples calls/connections concurrently over the IP network.)

Regarding Claim 19, Cheung'957 discloses wherein data from different connections are evaluated separately (see col. 5, lines 15-24; col. 6, lines 60 to col. 7, lines 10; note that the call quality requirements data are stored in a lookup that specifies certain call quality requirement for certain types of calls, specific calling parties, specific called parties, etc. since call quality requirement is varied for each type of call. Thus, it is clear that different types of calls/connection are monitored and determined/evaluated separately/differently according to the lookup table, which specified separate/different types of requirements).

Regarding Claim 22, Cheung'957 discloses wherein data from different connections are pooled (see col. 5, lines 15-24; col. 6, lines 60 to col. 7, lines 10; note that the call quality requirements data are stored in a lookup table. Thus, it is cleared that the different calls/connections data are pooled/shared the same look up table).

5. Claim 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung'957 and Qureshi'953, as applied to claims 1 and 9 above, and further in view of Cheng (U.S. 6,745,352).

Regarding claims 4 and 12, the combined system of Cheung'957 and Qureshi'953 discloses wherein said evaluation of packet loss data according to an algorithm as described above in claims 1 and 9.

Neither Cheung'957 nor Qureshi'953 explicitly discloses wherein said algorithm computes each time interval as a function of the data for that interval and at least one prior interval (see Cheng'352 col. 5, line 33-60, see col. 6, lines 7-43; **note that sliding window averaging algorithm utilizes each time/number of interval/iterations as a average data for past interval/iteration and the current interval/iteration to compute the average result/data**).

However, the above-mentioned claimed limitations are taught by Cheng'352. In view of this, having the combined system of Cheung'957 and Qureshi'953, and then given the teaching of Cheng'352, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Cheung'957 and Qureshi'953, for the purpose of providing algorithm which utilizes past interval/interaction and current interval/iteration when computing the result, as taught by Cheng'352, since Cheng'352 states the advantages/benefits at col. 1, lines 25-45 that it would provide accurate and reliable error rate estimation which adapts to channel condition changes. The motivation being that by estimating the error rate accurately, it can increase the capability to detect and correct the errors, thereby increasing the network reliability and performances.

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6. Claim 5,8,13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung'957, Qureshi'953 and Cheng'352, as described above in claim 4, and further in view of Esaki (U.S. 5,153,877).

Regarding claims 5, 8, 13 and 16, the combined system of Cheung'957, Qureshi'953, and Cheng'352 discloses the packet loss datum as described above in claim 4. Cheng'352 discloses wherein the function is an average (see Cheng'352 col. 5, line 33-60, see col. 6, lines 7-43; note that sliding window averaging algorithm is the average function since it is determined over number of iteration from the past and current.) Cheng'352 further discloses in which said average for an interval is the average of the datum for said interval and the value of said average for the prior interval (see Cheng'352 col. 5, line 33-60, see col. 6, lines 7-43; note that sliding window averaging algorithm utilizes each time/number of interval/iterations as a average data for past interval/iteration and the current interval/iteration to compute the average result/data).

Neither Cheung'957, Qureshi'953, nor Cheng'352 discloses a weighted average (see Esaki'877 col. 14, lines 20-67 to col. 15, lines 10; note that packet/cell loss rate is estimated by using a weighted average during the period T.)

However, the above-mentioned claimed limitations are taught by Esaki'877. In view of this, having the combined system of Cheung'957, Qureshi'953 and Cheng'352, and then given the teaching of Esaki'877, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Cheung'957, Qureshi'953 and Cheng'352, for the purpose of providing weighted average mechanism, as taught by Esaki'877, since Esaki'877 states the advantages/benefits at col. 2, lines 59-67 that

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it would provide a packet network in which the packet loss rate can be estimated/averaged with reduced amount of calculation. The motivation being that by utilizing the weighted average method, it can reduce the calculation burden in the network thereby increasing throughput and processing speed.

7. Claims 6, 14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung'957 and Qureshi'953, as applied to claims 1 and 9 above, and further in view of Wellard (U.S. 6,510,219).

Regarding claims 6 and 14, the combined system of Cheung'957 and Qureshi'953 discloses in which said blocking is done only if said packet loss data have been collected as described above in claims 1 and 9.

Neither Cheung'957 nor Qureshi'953 explicitly disclose which said blocking according to a prespecified minimum call duration.

However, the above-mentioned claimed limitations are taught by Wellard'219. In particular, Wellard'219 teaches which said blocking is done only if said loss data have been collected for a prespecified minimum call duration (**see FIG. 2, Steps 180,190,200,210, 220, 230 and 240**; note that blocking/stopping to transmit via 1st network is done (i.e. step 230 and 240) only if the transmission errors (i.e. **packet loss**, delay packet, corrupted packet; see col. 1, lines 39-46) have been collected for a predetermined call duration (i.e. a duration between 1st threshold crossing determination interval and 2nd threshold crossing determination interval). Wellard'219 teaches that upon monitoring/collection loss/errors and detecting that it is below the threshold, the system does not block the call immediately. It

continues monitors/collects the error for a duration/period during the call, and then blocking is performed by switching the call to 2nd network); **see col. 2, lines 59 to col. 3, lines 25; 40-45, 50-67, see col. 4, lines 1-65).**

In view of this, having the combined system of Cheung'957 and Qureshi'953, then given the teaching of Wellard'219, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Cheung'957 and Qureshi'953, for the purpose of providing algorithm which utilizes past interval/interaction and current interval/iteration when computing the result, as taught by Wellard'219, since Wellard'219 states the advantages/benefits at col. 2, lines 1-20, 35-42 that it would provide a mechanism for transparently re-routing the call upon from QoS of unreliable network to a different network. The motivation being that by rerouting the call between the networks, it can increase the customer satisfaction since QoS of the call will be maintained.

Regarding claim 20, the combined system of Cheung'957 and Qureshi'953 discloses wherein evaluated connection is consulted to determine whether to block calls as described above in claim 9.

Neither Cheung'957 nor Qureshi'953 explicitly disclose wherein the most recently evaluated connection is consulted.

However, the above-mentioned claimed limitations are taught by Wellard'219. In particular, Wellard'219 teaches wherein the most recently evaluated connection (**see FIG. 2, Step 190. 200, 220, and 230; a connection/call that is determined to fall below 1st threshold, and in the process of continuing monitoring**) is consulted to determine whether

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to block calls (see FIG. 2, step 240; a call, which most recently have been determined that it is below 1st threshold, is checked/consulted to determine whether or not it passes 2nd threshold in order to block/switch the call); **see col. 2, lines 59 to col. 3, lines 25; 40-45, 50-67, see col. 4, lines 1-65).**

In view of this, having the combined system of Cheung'957 and Qureshi'953, then given the teaching of Wellard'219, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Cheung'957 and Qureshi'953, for the same purpose and motivation as described above in claim 14 above.

8. Claim 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung'957 and Qureshi'953, as applied to claim 1 and 9 above, and further in view of Dawson (U.S. 5,390,188).

Regarding claims 7 and 15, the combined system of Cheung'957 and Qureshi'953 discloses if in any interval, the collected packet loss datum exceeds a prespecified limiting value (see Cheung'957 FIG. 5, Steps 560 and 570; **when the output of steps 560 and 570 does not meet the threshold criteria; see Qureshi'953 FIG. 7)** as described above in claims 1 and 9.

Neither Cheung'957 nor Qureshi'953 explicitly disclose said the packet loss is represented by said value (see Dawson'188 col. 29, lines 51 to col. 31, lines 25; **note that a packet loss represents by the value).**

However, the above-mentioned claimed limitations are taught by Dawson'188. In view of this, having the combined system of Cheung'957 and Qureshi'953, then given the

teaching of Dawson'188, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Cheung'957 and Qureshi'953, for the purpose of providing algorithm which utilizes past interval/interaction and current interval/iteration when computing the result, as taught by Dawson'188, since Dawson'188 states the advantages/benefits at col. 31, lines 25-30, 45-49 that it would provide a mechanism for fault detection and isolation techniques with respected to messages by utilizing the packet loss representative value. The motivation being that by rerouting the call between the networks, it can increase the customer satisfaction since QoS of the call will be maintained.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cheung'957 and Qureshi'953, as applied to claim 9 above, and further in view of Esaki (U.S. 5,153,877).

Regarding claim 21, the combined system of Cheung'957 and Qureshi'953 discloses wherein evaluation across current connection is consulted/verified/checked to determine whether to block calls as described above in claim 9.

Neither Cheung'957 nor Qureshi'953 explicitly disclose an average (**see Esaki'877 col. 14, lines 20-67 to col. 15, lines 10; note that packet/cell loss rate is estimated by using a weighted average during the period T.**)

However, the above-mentioned claimed limitations are taught by Esaki'877. In view of this, having the combined system of Cheung'957 and Qureshi'953, then given the teaching of Esaki'877, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Cheung'957 and Qureshi'953, for

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the purpose of providing weighted average mechanism, as taught by Esaki'877, since Esaki'877 states the advantages/benefits at col. 2, lines 59-67 that it would provide a packet network in which the packet loss rate can be estimated/averaged with reduced amount of calculation. The motivation being that by utilizing the weighted average method, it can reduce the calculation burden in the network thereby increasing throughput and processing speed.

Allowable Subject Matter

10. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on 703-308-7828. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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KENNETH VANDERPUYE
PRIMARY EXAMINER